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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/726,682

12/04/2003

Hitoshi Mizutani

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02/08/2006

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EXAMINER

DUONG, THOI V

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 02/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Alr

Office Action Summary	Application No. 10/726,682	Applicant(s) MIZUTANI ET AL.	
	Examiner Thoi V. Duong	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-7 and 9-14 ~~is~~are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-7 and 9-14 ~~is~~are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the Amendment filed November 23, 2005.

Accordingly, claims 1, 5-7 and 9-12 were amended, claims 2-4 and 8 were cancelled, and new claims 13 and 14 were added. Currently, claims 1, 5-7 and 9-14 are pending in this application.

Claim Objections

2. Claim 7 is objected to because of the following informalities: claim 7 should be dependent on claim 1 instead of claim 2 which was cancelled. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art (Fig. 13) in view of Mabuchi (USPN 6,679,613 B2).

Re claim 1, as shown in Fig. 13, Applicant's Prior art discloses a spread illuminating apparatus for illuminating two objects, the apparatus comprising:

at least one light source 14;

a light conductive plate 11 having the at least one light source 14 provided at one end surface thereof and adapted to allow light emitted from the at least one light source and introduced therein to exit out therefrom through two major surfaces thereof

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respectively toward a first liquid crystal display element 7A which constitutes one of two objects to be illuminated, and which is disposed over one of the two major surfaces (left surface) of the light conductive plate 11, and toward a second liquid crystal display element 7B which constitutes the other of the two objects to be illuminated, has a smaller display screen size than the first liquid crystal display element 7A, and which is partially disposed over the other of the two major surfaces (right surface) of the light conductive plate 11, the second liquid crystal display element 7B covering one area Z, but not covering another area Y, of the other of the two major surfaces (right surface) of the light conductive plate 11 (page 1, paragraphs 7 and 8).

Applicant's Prior Art also discloses that light PR existing out from the light conductive plate 11 is not utilized at the non-display area Y, which means wasted electric power of the light source thus having a critical impact on an electronics device, such as portable telephone, which strongly demands lower power consumption (page 1, paragraph 7).

Applicant's Prior art discloses a spread illuminating apparatus that is basically the same as that recited in claim 1 except for a reflector plate reflecting light toward the first display element and partially disposed at the other major surface of the light conductive plate having the second liquid crystal display element, the reflector plate covering an area of the other of the two major surfaces that is not covered by the second liquid crystal display element, the reflector plate not covering an area of the other of the two major surfaces that is covered by the second liquid crystal element.

As shown in Fig. 4, Mabuchi discloses a spread illuminating apparatus 10 comprising a reflector plate 18, reflecting light L2 toward a first display element 22 (col. 4, lines 48-55), partially disposed at the lower major surface of a light conductive plate 16 having a second liquid crystal display element 20, the reflector plate 18 covering an area that is not covered by the second liquid crystal display element 20, the reflector plate 18 not covering an area that is covered by the second liquid crystal element 20.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the spread illuminating apparatus of Applicant's Prior Art with the teaching of Mabuchi by forming a reflector plate reflecting light toward the first display element and partially disposed at the other major surface of the light conductive plate having the second liquid crystal display element, the reflector plate covering an area of the other of the two major surfaces that is not covered by the second liquid crystal display element, the reflector plate not covering an area of the other of the two major surfaces that is covered by the second liquid crystal element in order to utilize the light emitted from the light source by reflecting the light emitted from the light source for the display (col. 4, lines 48-58).

Re claim 6, the reflector plate 18 of Mabuchi has its reflectance matched with reflectance of the second liquid crystal display panel 20 (see lights L1-L3 in Fig. 4 and col. 4, lines 38-55).

5. Claims 7 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable Applicant's Prior Art (Fig. 13) in view of Mabuchi (USPN 6,679,613 B2) as applied to

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claims 1 and 6 above, and further in view of Watanabe et al. (Watanabe, USPN 6,243,150 B1).

The spread illuminating apparatus of Applicant's Prior Art as modified in view of Mabuchi above includes all that is recited in claims 7 and 12 except for the reflector plate having its reflectance gradually varying at a given area close to the second liquid crystal display element.

As shown in Fig. 6, Watanabe discloses a reflection means 4h having its reflectance gradually varying at a given area close to the liquid crystal display element 2 (col. 8, lines 21-39 and col. 9, lines 11-17).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the spread illuminating apparatus of Applicant's Prior Art with the teaching of Watanabe by forming a reflecting means having its reflectance gradually varying at a given area close to the second liquid crystal display element so as to effectively reflect light having low intensity and uniformly illuminate the liquid crystal element (col. 4, lines 1-7 and col. 9, lines 14-17).

6. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art (Fig. 13) in view of Mabuchi (USPN 6,679,613 B2), Akiyama (US 2005/0073627 A1) and Murakami et al. (Murakami (USPN 6,529,250 B1).

Re claim 5, as shown in Fig. 13, Applicant's Prior art discloses a spread illuminating apparatus for illuminating two objects, the apparatus comprising:

at least one light source 14;

a light conductive plate 11 having the at least one light source 14 provided at one end surface thereof and adapted to allow light emitted from the at least one light source and introduced therein to exit out therefrom through two major surfaces thereof respectively toward a first liquid crystal display element 7A which constitutes one of two objects to be illuminated, and which is disposed over one of the two major surfaces (left surface) of the light conductive plate 11, and toward a second liquid crystal display element 7B which constitutes the other of the two objects to be illuminated, has a smaller display screen size than the first liquid crystal display element 7A, and which is partially disposed over the other of the two major surfaces (right surface) of the light conductive plate 11, the second liquid crystal display element 7B covering one area Z, but not covering another area Y, of the other of the two major surfaces (right surface) of the light conductive plate 11 (page 1, paragraphs 7 and 8).

Applicant's Prior Art also discloses that light PR existing out from the light conductive plate 11 is not utilized at the non-display area Y, which means wasted electric power of the light source thus having a critical impact on an electronics device, such as portable telephone, which strongly demands lower power consumption (page 1, paragraph 7).

Applicant's Prior art discloses a spread illuminating apparatus that is basically the same as that recited in claim 1 except for a reflector plate partially provided so as to cover an area of the other of the two major surfaces that is not covered by the second liquid crystal display element, the reflector plate not covering an area of the other of the two major surfaces that is covered by the second liquid crystal element, and a reflective

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polarizer plate which reflects P-polarized light and transmits S-polarized light selectively, or vice versa, and which is provided so as to cover entirely the other major surface of the light conductive plate having the second liquid crystal display element.

At first, as shown in Fig. 4, Mabuchi discloses a spread illuminating apparatus 10 comprising a reflector plate 18, reflecting light L2 toward a first display element 22 (col. 4, lines 48-55), partially disposed at the lower major surface of a light conductive plate 16 having a second liquid crystal display element 20, the reflector plate 18 covering an area that is not covered by the second liquid crystal display element 20, the reflector plate 18 not covering an area that is covered by the second liquid crystal element 20.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the spread illuminating apparatus of Applicant's Prior Art with the teaching of Mabuchi by forming a reflector plate partially provided so as to cover an area of the other of the two major surfaces that is not covered by the second liquid crystal display element, the reflector plate not covering an area of the other of the two major surfaces that is covered by the second liquid crystal element in order to utilize the light emitted from the light source by reflecting the light emitted from the light source for the display (col. 4, lines 48-58).

Further, as shown in Fig. 6, Akiyama discloses a spread illuminating apparatus comprising a reflective polarizer plate 120/104 which is provided so as to cover entirely the lower major surface of a light conductive plate 112 having a second liquid crystal display element 102 (page 7, paragraph 87).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the spread illuminating apparatus of Applicant's Prior Art with the teaching of Akiyama to form a reflective polarizer plate to cover entirely the surface of a light conductive plate having the second liquid crystal display element to achieve high visibility of an image to be displayed (page 7, paragraph 87).

Furthermore, as shown in Fig. 7, Murakari discloses a reflective polarizer plate having a polarization transmission axis and a reflection axis set such that S-polarized light beams are transmitted and P-polarized light beams are reflected, or vice versa (col. 4, lines 43-56, col. 13, lines 60-67 and col. 17, lines 27-33).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the spread illuminating apparatus of Applicant's Prior Art by employing the reflective polarizer plate of Murakari so as to maintain excellent liquid crystal light valve characteristics and allow light from a light source to be used with high efficiency (col. 3, lines 5-14).

Re claim 10, the reflector plate 18 of Mabuchi has its reflectance matched with reflectance of the second liquid crystal display panel 20 (see lights L1-L3 in Fig. 4 and col. 4, lines 38-55).

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art (Fig. 13) in view of Mabuchi (USPN 6,679,613 B2), Akiyama (US 2005/0073627 A1) and Murakami et al. (Murakami (USPN 6,529,250 B1) as applied to

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claims 5 and 10 above, and further in view of Watanabe et al. (Watanabe, USPN 6,243,150 B1).

The spread illuminating apparatus of Applicant's Prior Art as modified in view of Mabuchi, Akiyama and Murakami above includes all that is recited in claim 11 except for the reflector plate having its reflectance gradually varying at a given area close to the second liquid crystal display element.

As shown in Fig. 6, Watanabe discloses a reflection means 4h having its reflectance gradually varying at a given area close to the liquid crystal display element 2 (col. 8, lines 21-39 and col. 9, lines 11-17).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the spread illuminating apparatus of Applicant's Prior Art with the teaching of Watanabe by forming a reflecting means having its reflectance gradually varying at a given area close to the second liquid crystal display element so as to effectively reflect light having low intensity and uniformly illuminate the liquid crystal element (col. 4, lines 1-7 and col. 9, lines 14-17).

8. Claims 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art (Fig. 13) in view of Mabuchi (USPN 6,679,613 B2), Akiyama (US 2005/0073627 A1), Murakami et al. (Murakami (USPN 6,529,250 B1), and Saccomanno (USPN 6,443,585).

Re claim 9, as shown in Fig. 13, Applicant's Prior art discloses a spread illuminating apparatus for illuminating two objects, the apparatus comprising:

at least one light source 14;

a light conductive plate 11 having the at least one light source 14 provided at one end surface thereof and adapted to allow light emitted from the at least one light source and introduced therein to exit out therefrom through two major surfaces thereof respectively toward a first liquid crystal display element 7A which constitutes one of two objects to be illuminated, and which is disposed over one of the two major surfaces (left surface) of the light conductive plate 11, and toward a second liquid crystal display element 7B which constitutes the other of the two objects to be illuminated, has a smaller display screen size than the first liquid crystal display element 7A, and which is partially disposed over the other of the two major surfaces (right surface) of the light conductive plate 11, the second liquid crystal display element 7B covering one area Z, but not covering another area Y, of the other of the two major surfaces (right surface) of the light conductive plate 11 (page 1, paragraphs 7 and 8).

Applicant's Prior Art also discloses that light PR existing out from the light conductive plate 11 is not utilized at the non-display area Y, which means wasted electric power of the light source thus having a critical impact on an electronics device, such as portable telephone, which strongly demands lower power consumption (page 1, paragraph 7).

Applicant's Prior art discloses a spread illuminating apparatus that is basically the same as that recited in claim 1 except for a reflector plate partially provided so as to cover an area of the other of the two major surfaces that is not covered by the second liquid crystal display element, the reflector plate not covering an area of the other of the two major surfaces that is covered by the second liquid crystal element, and a reflective

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polarizer plate which reflects P-polarized light and transmits S-polarized light selectively, or vice versa, and which is provided at and in direct contact with the other major surface of the light conductive plate having the second liquid crystal display element.

At first, as shown in Fig. 4, Mabuchi discloses a spread illuminating apparatus 10 comprising a reflector plate 18, reflecting light L2 toward a first display element 22 (col. 4, lines 48-55), partially disposed at the lower major surface of a light conductive plate 16 having a second liquid crystal display element 20, the reflector plate 18 covering an area that is not covered by the second liquid crystal display element 20, the reflector plate 18 not covering an area that is covered by the second liquid crystal element 20.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the spread illuminating apparatus of Applicant's Prior Art with the teaching of Mabuchi by forming a reflector plate partially provided so as to cover an area of the other of the two major surfaces that is not covered by the second liquid crystal display element, the reflector plate not covering an area of the other of the two major surfaces that is covered by the second liquid crystal element in order to utilize the light emitted from the light source by reflecting the light emitted from the light source for the display (col. 4, lines 48-58).

Further, as shown in Fig. 6, Akiyama discloses a spread illuminating apparatus comprising a reflective polarizer plate 120/104 which is provided so as to cover entirely the lower major surface of a light conductive plate 112 having a second liquid crystal display element 102 (page 7, paragraph 87).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the spread illuminating apparatus of Applicant's Prior Art with the teaching of Akiyama to form a reflective polarizer plate to cover entirely the surface of a light conductive plate having the second liquid crystal display element to achieve high visibility of an image to be displayed (page 7, paragraph 87).

Furthermore, as shown in Fig. 7, Murakari discloses a reflective polarizer plate having a polarization transmission axis and a reflection axis set such that S-polarized light beams are transmitted and P-polarized light beams are reflected, or vice versa (col. 4, lines 43-56, col. 13, lines 60-67 and col. 17, lines 27-33).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the spread illuminating apparatus of Applicant's Prior Art by employing the reflective polarizer plate of Murakari so as to maintain excellent liquid crystal light valve characteristics and allow light from a light source to be used with high efficiency (col. 3, lines 5-14).

Finally, as shown in Fig. 1, Saccomanno discloses a reflective polarizer plate 8 provided in direct contact with a surface of a light conductive plate 7 (aperture 11) having a liquid crystal display element 16.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the spread illuminating apparatus of Applicant's Prior Art with the teaching of Saccomanno by providing a reflective polarizer plate in direct contact with the other major surface of the light conductive plate having

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the second liquid crystal display element so as to uniformly transmit the light from an exit aperture of the light conductive plate (col. 2, lines 40-46).

Re claim 13, the reflector plate 18 of Mabuchi has its reflectance matched with reflectance of the second liquid crystal display panel 20 (see lights L1-L3 in Fig. 4 and col. 4, lines 38-55).

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art (Fig. 13) in view of Mabuchi (USPN 6,679,613 B2), Akiyama (US 2005/0073627 A1), Murakami et al. (Murakami (USPN 6,529,250 B1), and Saccomanno (USPN 6,443,585) as applied to claims 9 and 13 above, and further in view of Watanabe et al. (Watanabe, USPN 6,243,150 B1).

The spread illuminating apparatus of Applicant's Prior Art as modified in view of Mabuchi, Akiyama, Murakami and Saccomanno above includes all that is recited in claim 14 except for the reflector plate having its reflectance gradually varying at a given area close to the second liquid crystal display element.

As shown in Fig. 6, Watanabe discloses a reflection means 4h having its reflectance gradually varying at a given area close to the liquid crystal display element 2 (col. 8, lines 21-39 and col. 9, lines 11-17).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the spread illuminating apparatus of Applicant's Prior Art with the teaching of Watanabe by forming a reflecting means having its reflectance gradually varying at a given area close to the second liquid crystal

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display element so as to effectively reflect light having low intensity and uniformly illuminate the liquid crystal element (col. 4, lines 1-7 and col. 9, lines 14-17).

Conclusion

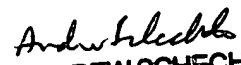
10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (571) 272-2293.

Thoi Duong
02/05/2006




ANDREW SCHECHTER
PRIMARY EXAMINER